Bay Area/California High-Speed Rail
Ridership and Revenue Forecasting Study

presented to
California High-Speed Rail Authority Board

presented by
Maren Outwater, Cambridge Systematics, Inc.

with
Metropolitan Transportation Commission
California High-Speed Rail Authority

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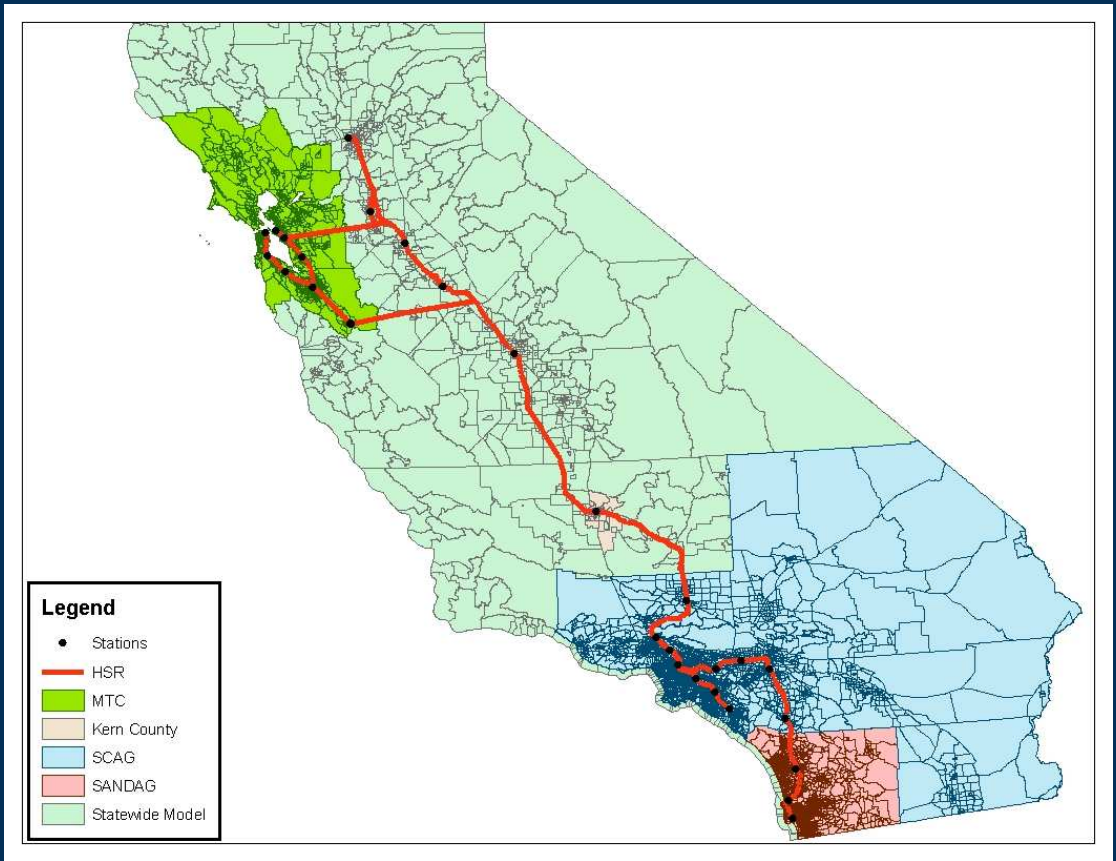
Transportation leadership you can trust.

CAMBRIDGE SYSTEMATICS

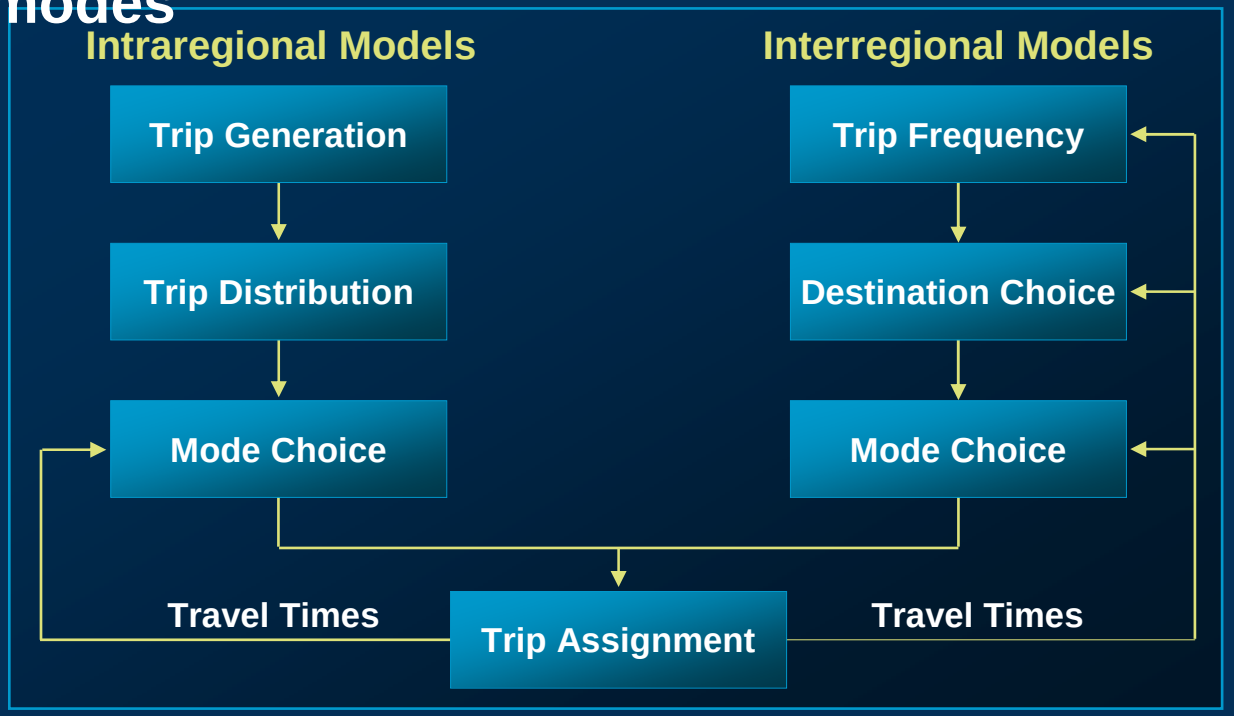
Model Overview

- Forecast all interregional trips within California
- Forecast intraregional trips in largest urban areas
- Include induced travel for interregional trips

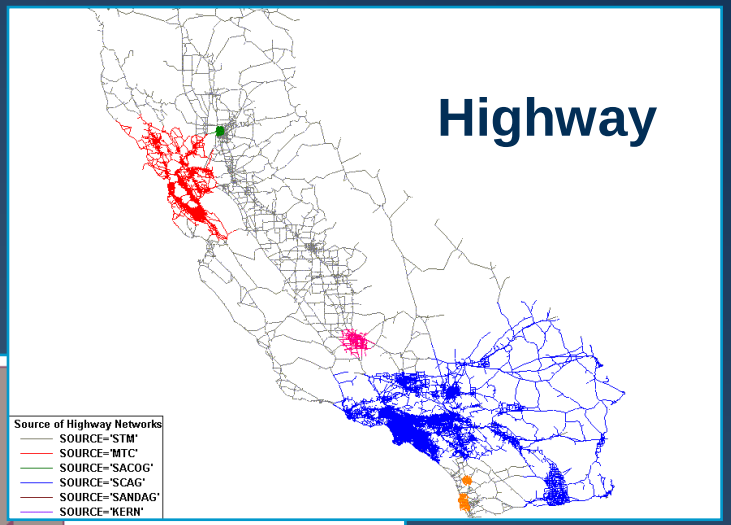


Integrated Modeling Process

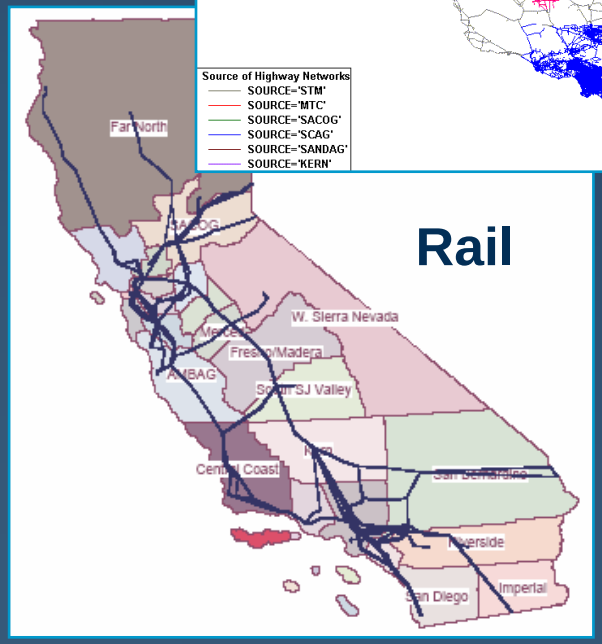
- Peak and off-peak time periods
- Highway, air, conventional and high-speed rail, and other local transit modes

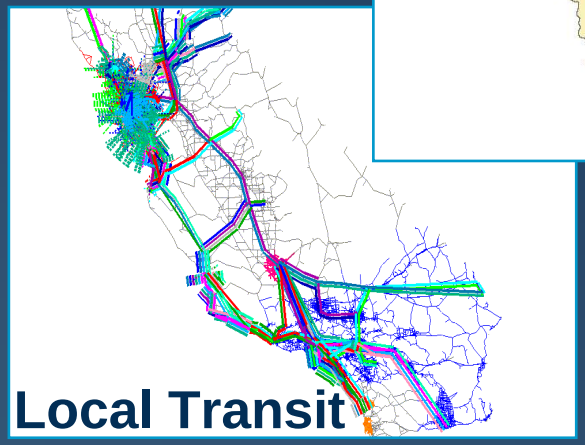


Networks

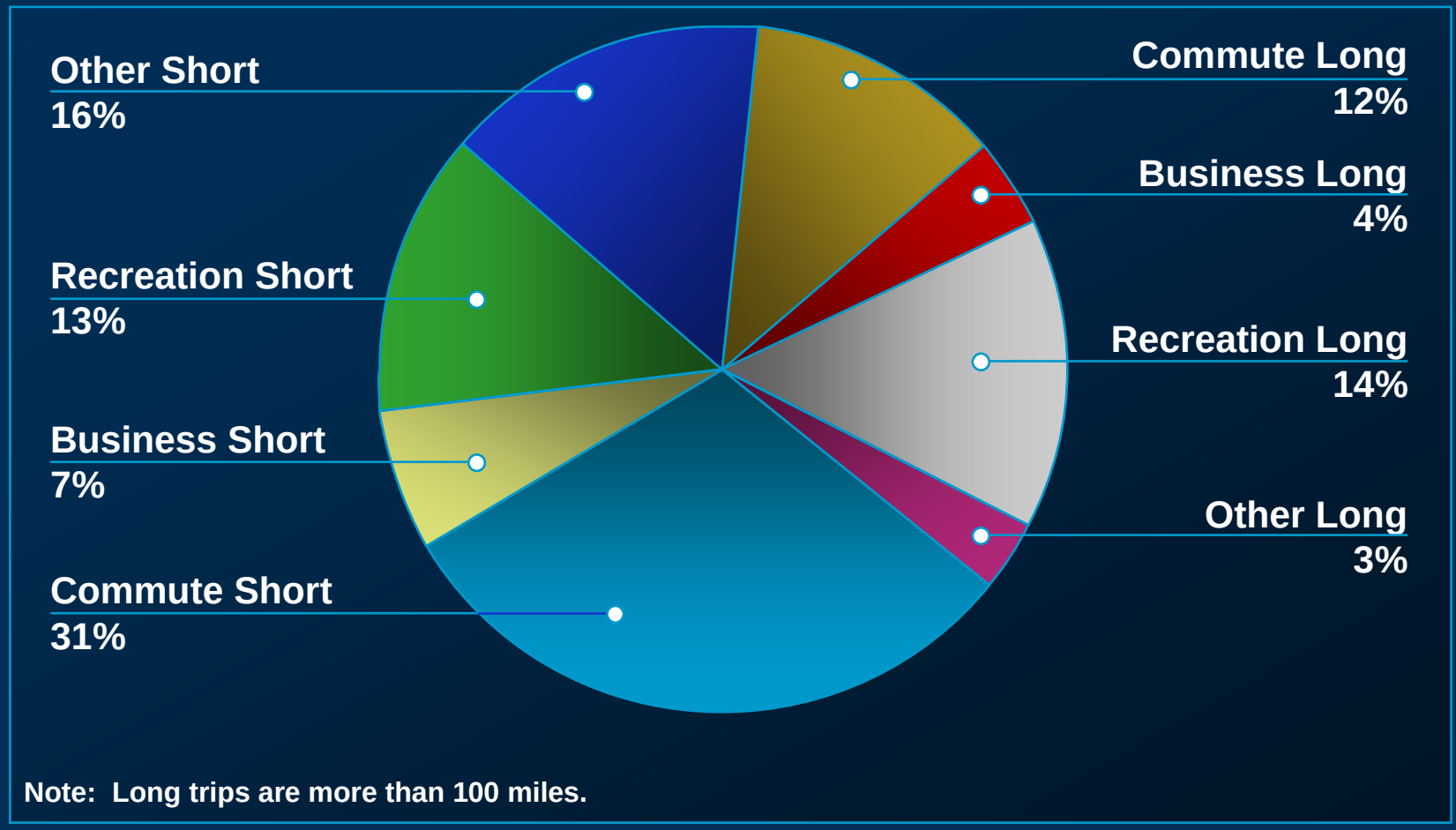

Highway
Source of Highway Networks
SOURCE='STM'
SOURCE='MTC'
SOURCE='SACOG'
SOURCE='SCAG'
SOURCE='SANDAG'
SOURCE='KERN'


Air
Eureka
Sacramento
Oakland
San Jose
Monterey
Bakersfield
Fresno
Santa Barbara
Oxnard
Burbank
Ontario
Palm Springs
Long Beach
Los Angeles
Santa Ana
San Diego


Rail
Far North
W. Sierra Nevada
Fresno/Madera
Central Coast
San Diego
Imperial


Local Transit

Market Segments in 2030
2.5 Million Daily Trips



Note: Long trips are more than 100 miles.

2030 Travel Markets for Interregional Trips

Market	Daily Trips (in thousands)
LA to Sacramento	20
LA to San Diego	367
LA to SF	56
Sacramento to SF	187
Sacramento to San Diego	5
San Diego to SF	23
LA/SF to SJV	376
Other to SJV	560
To/From Central Coast	434
To/From Far North	328
To/From W. Sierra Nevada	98

2.5 million daily trips

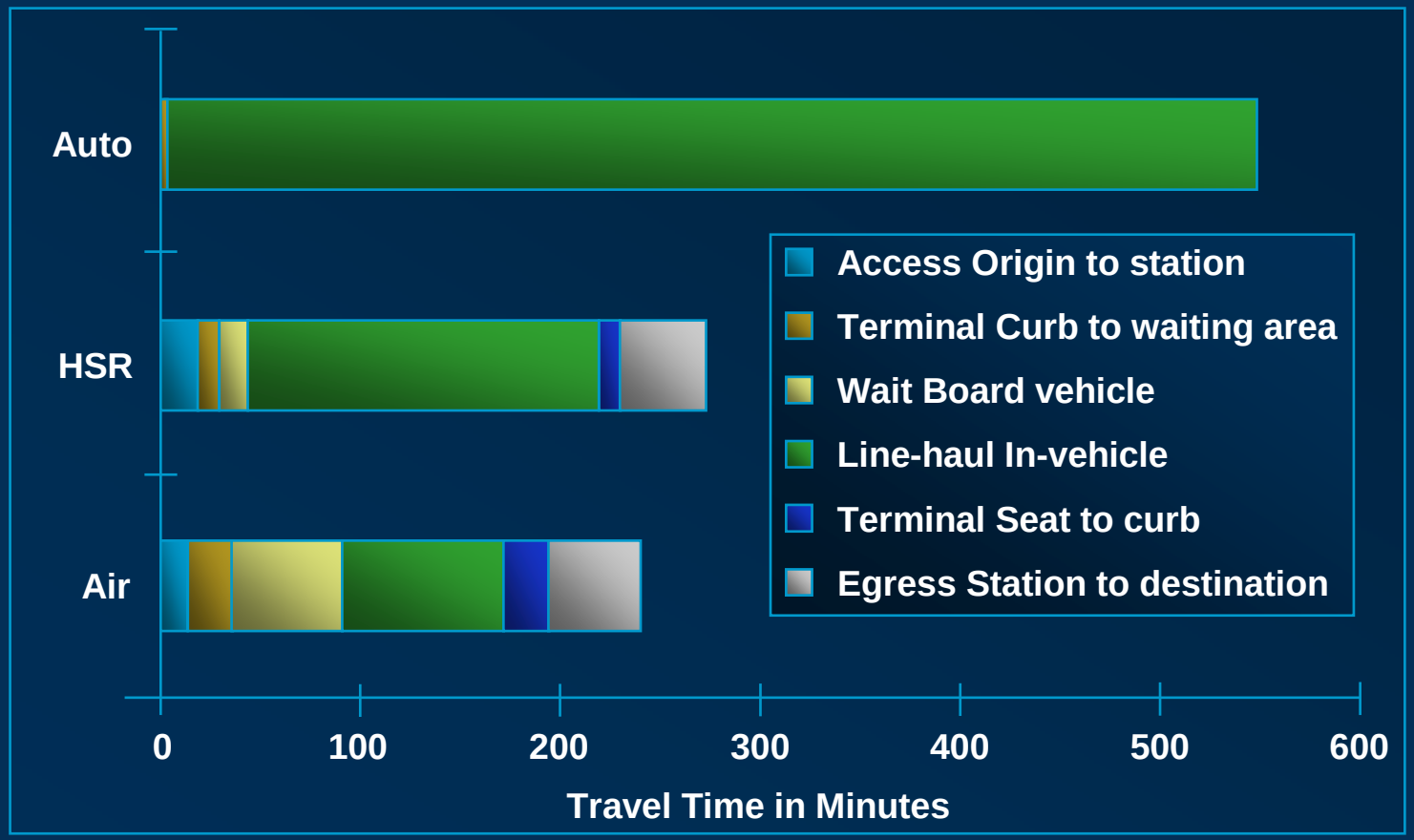
(0.7 million daily trips in 2000 business plan)

Differences from 2000 Business Plan Forecasts

- **Total Annual Travel is 896 million trips in 2030 compared to 264 million**
  - **Includes all of California, instead of 11 metro areas**
  - **Includes long distance commute travel**
  - **Includes all auto trips, calibrated to match observed**
- **Total Annual HSR Riders is 57 million trips in 2030 compared to previous 37 million (with similar operating plan)**
  - **Includes link to Orange County**
  - **Includes increases in auto operating cost of 25 percent observed from 2000 to 2005**

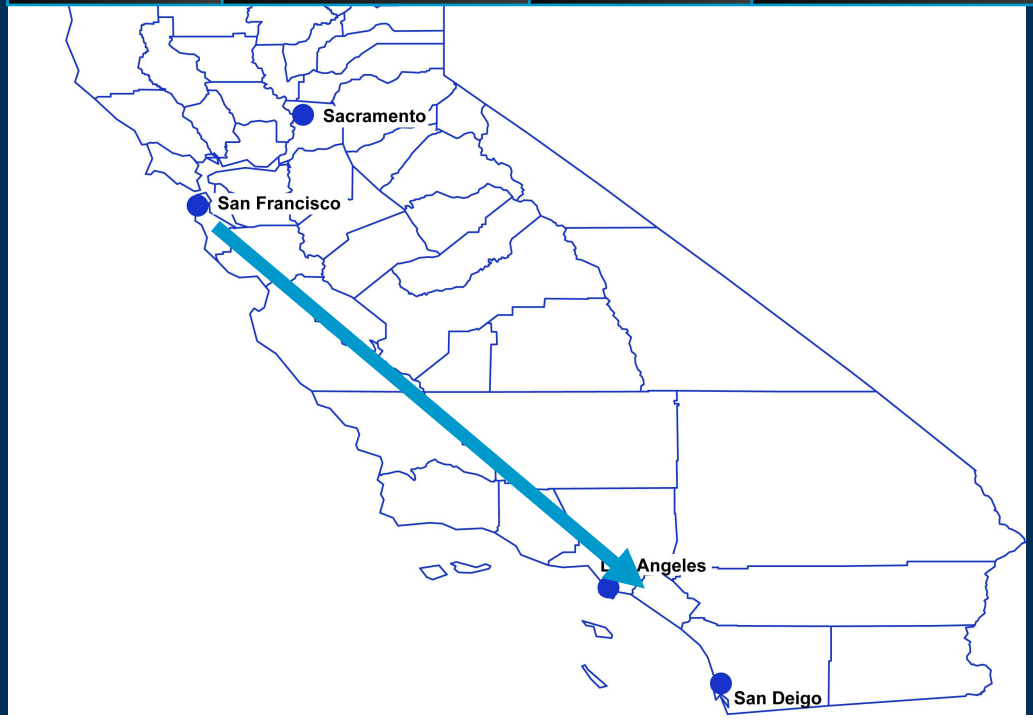
Door to Door Travel Times – Example
South San Francisco to Central LA

Travel Time Components – Door to Door



Level of Service and Mode Choice – Example
South San Francisco to Central LA

Mode	Door to Door Times (minutes)	Cost (2005 Dollars)	Headway (minutes)	Mode Shares	
				Business	Other
Auto	541	$68	n/a	15%	37%
HSR	270	$93	18	14%	37%
Air	236	$179	9	72%	26%

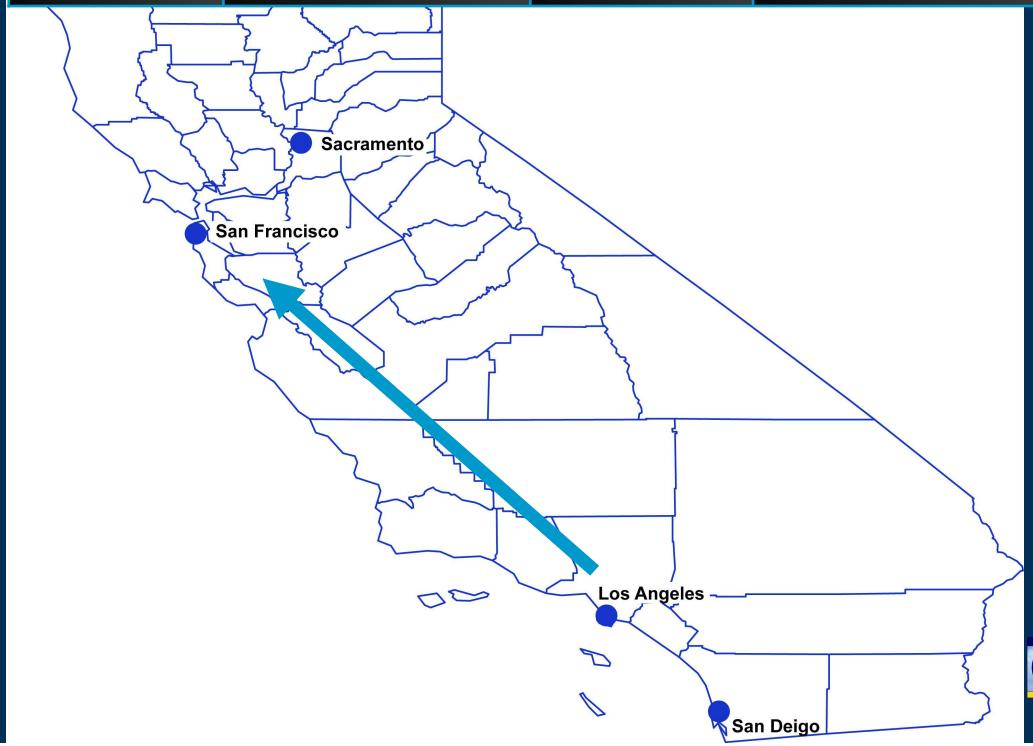


Level of Service and Mode Choice – Example
Fresno to Downtown San Francisco

Mode	Door to Door Times (minutes)	Cost (2005 Dollars)	Headway (minutes)	Mode Shares	
				Business	Other
Auto	291	$53	n/a	84%	44%
HSR	137	$36	15	15%	56%
CVR	292	$54	90	1%	0%

Level of Service and Mode Choice – Example
Burbank to Downtown San Jose

Mode	Door to Door Times (minutes)	Cost (2005 Dollars)	Headway (minutes)	Mode Shares	
				Business	Other
Auto	439	$75	n/a	49%	32%
HSR	199	$58	16	31%	58%
Air	188	$115	72	21%	11%



Service Operating Plans
Differences from 2000 Business Plan

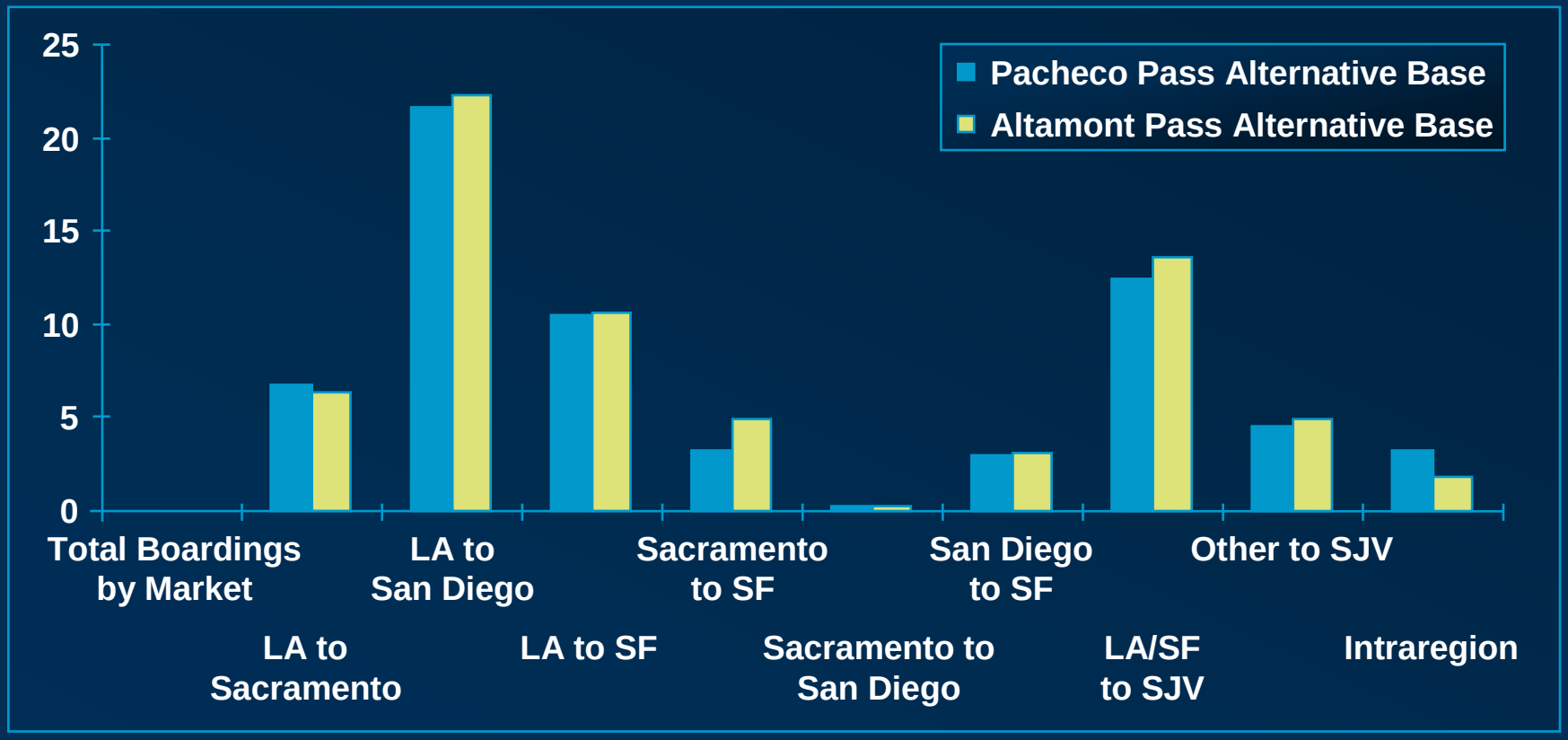
- Service plans based on evaluation of potential high speed rail riders
- Increased local services between -
  - San Francisco and San Joaquin Valley
  - Los Angeles and San Joaquin Valley
  - San Diego to Sacramento
  - San Francisco to Sacramento
- Added service from Los Angeles to Orange County

Annual Interregional Ridership in 2030
Number in Millions

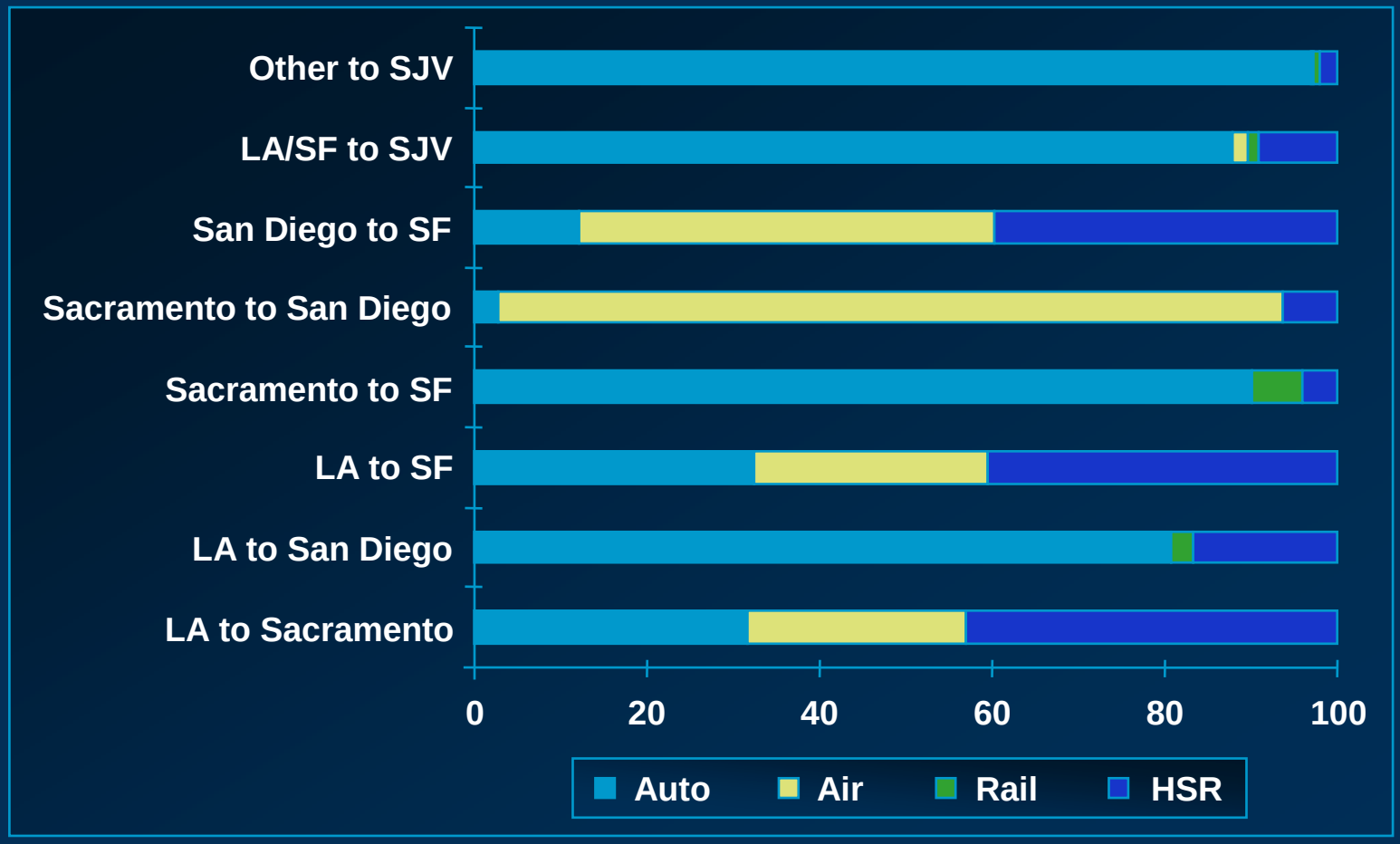
	2000 Business Plan	Base	Higher Air and Auto Cost
Pacheco	37	65	95
Altamont		69	94
Percent Difference		*+4 percent*	*-1 percent*

Air and auto costs are 50 percent higher than the base

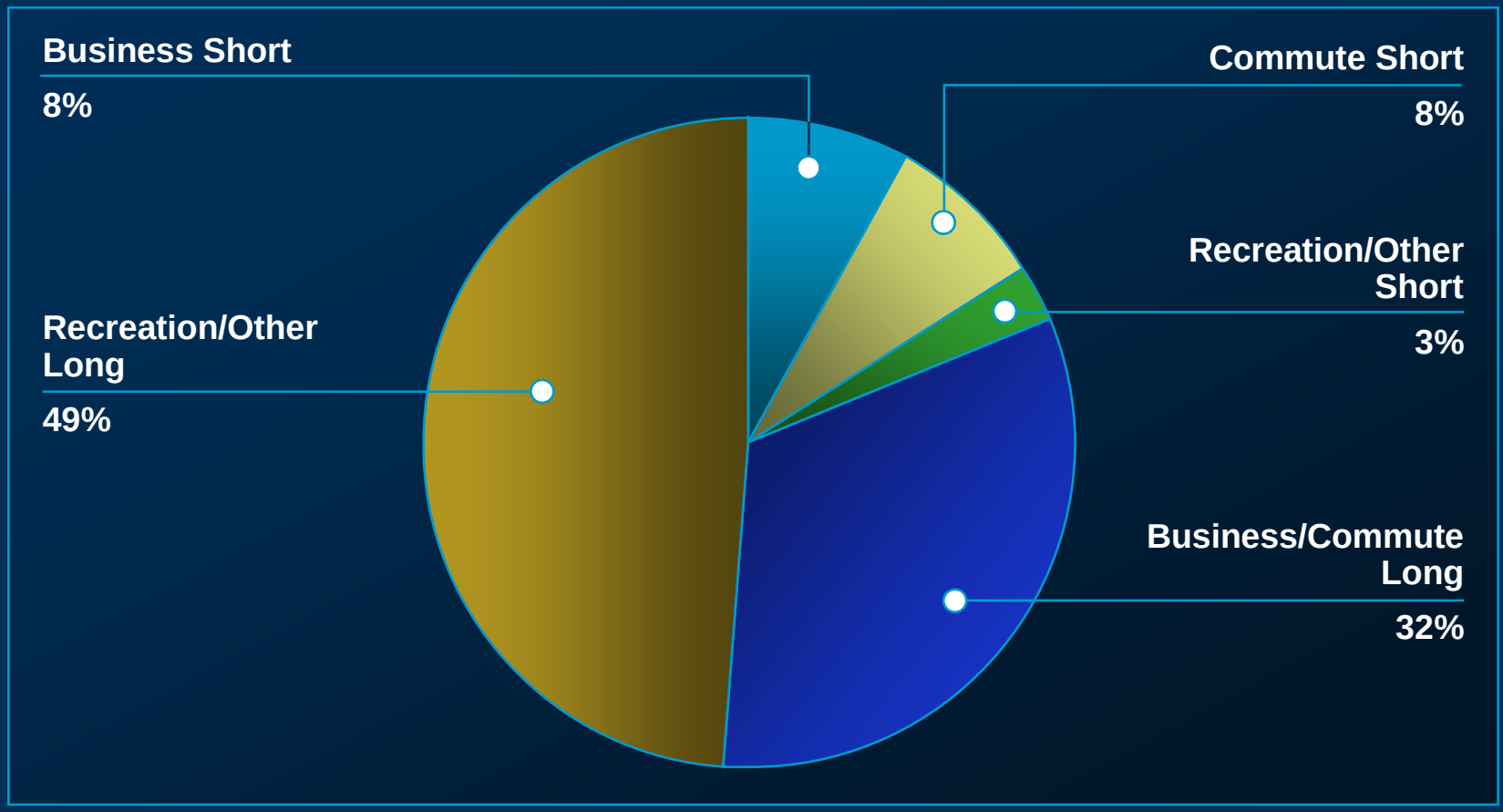
Annual Interregional Ridership in 2030 by Market
Number in Millions



2030 Mode Shares by Travel Market



Interregional HSR Ridership by Purpose



Sensitivity Tests

Test	Change in HSR Ridership		Change in HSR Revenues
	Business	Other	
Increase HSR fares (25 percent)	-8 percent	-15 percent	+2 percent
Double HSR frequency	+12 percent	+22 percent	+16 percent
Increase Air and Auto Times (6 percent), Increase Air and Auto Costs (50 percent)	+29 percent	+94 percent	+53 percent

Fare Structure

- Interregional fares set to 50 percent of air fare in SF to LA market
- Intraregional fares set to 50 percent higher than commuter rail
- 25 percent increase in fares caused
  - 13 percent drop in ridership and
  - 2 percent increase in revenues

Market	Average Fare
LA to Sacramento	$55
LA to San Diego	$20
LA to SF	$56
Sacramento to SF	$37
Sacramento to San Diego	$66
San Diego to SF	$68
LA/SF to SJV	$38

Note: In 2005 dollars.

Annual Interregional Revenues in 2030
In Millions

	2000 Business Plan	Base	Higher Air and Auto Cost
Pacheco	$1,214	$2,377	$3,724
Altamont		$2,454	$3,621
Percent Difference		*+3 percent*	*-3 percent*

Note: In 2005 dollars.

Air and auto costs are 50 percent higher than the base

Annual Intraregional Ridership and Revenue in 2030

Urban Area	Boardings (in millions)	Revenues (in millions)
San Francisco Bay Area	4.4	$41
Los Angeles Region	15.7	$142
San Diego Region	0.4	$4
Total	20.5	$186

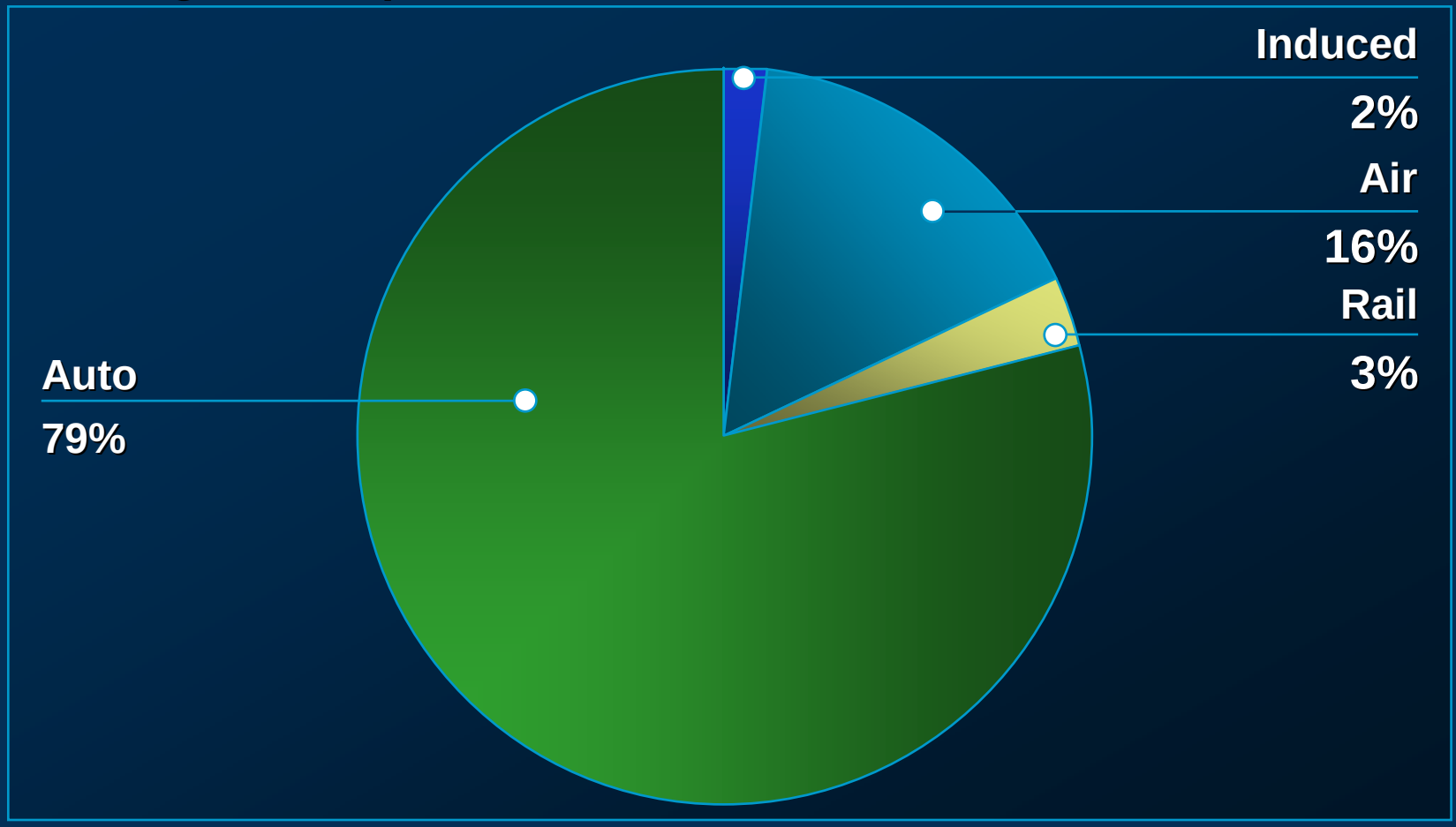
Note: In 2005 dollars.

A 50 percent increase in Air and Auto Costs would increase intraregional ridership and revenues by 6 percent, or

- 21.7 million annual HSR riders
- $197 million in revenues

Sources of HSR Ridership

- Interregional Trips



Total Statewide HSR Ridership and Revenue

	Base (1)	Higher Air and Auto Cost (2)
2030 Annual Ridership in millions		
Pacheco	86	117
Altamont	90	116
Percent Difference	*+5 percent*	*-1 percent*
2030 Annual Revenues in millions		
Pacheco	$2,563	3,921
Altamont	$2,640	3,818
Percent Difference	*+3 percent*	*-3 percent*

Reports Available on the CHSRA Web Site

- Interregional Model System Development
- Level-of-Service Assumptions and Forecast Alternatives
- Findings from the Second Peer Review Panel Meeting and Findings from the First Peer Review Panel Meeting
- Survey Documentation
- Socioeconomic Data, Transportation Supply, and Base Year Travel Patterns Data

Next Steps

- Generate data for environmental studies
- Conduct additional alternative tests
- Finalize intraregional models in Southern California